

REMARKS

The Examiner rejects claims 1-4 in the subject application. Claims 1-4 (1 independent claim; 4 total claims) remain pending in the application.

The Examiner objects to the abstract and title of the invention, and suggests an appropriate title. Applicant has amended the title as suggested by the Examiner. Applicant has also amended the Abstract to remove the objected to phrase under M.P.E.P. §608.01(b).

Support for the various amendments may be found in the originally filed specification, claims, and figures. No new matter has been introduced by these amendments. Reconsideration of this application is respectfully requested.

35 U.S.C. § 103 REJECTIONS

The Examiner rejects claims 1-4 under 35 U.S.C. §103(a) as allegedly being unpatentable over Herzl (U.S. Patent No. 3,709,034, issued January 9, 1973 to Fischer & Porter Company) in view of Freund (U.S. Patent No. 5,983,730, issued November 16, 1999 to Daniel Industries, Inc.). Applicant respectfully traverses the rejection.

Herzl Reference

Herzl discloses a signal conditioner for extracting the dominant frequency of an output signal of a swirl or vortex type flowmeter. A composite signal (CS) has a dominant fundamental frequency and low and high frequency components. When the CS signal (applied to a trigger 19) exceeds a level L1, the state of trigger 19 switches from (-) to (+). Then, when the amplitude of the CS signal drops to an intersection point Y in level L2, trigger 19 reverts to state (-). Trigger 19 generates a square wave whose periodicity corresponds to the dominant frequency of the signals.¹

Freund Reference

Freund discloses an apparatus for measuring the time of flight of a signal between two points (or the time of flight of a reflected signal to return to the original point).² Freund discloses measuring the time-of-flight of a signal in an ultrasonic flow meter by (a) transmitting a signal through a flowing fluid with a transducer; (b) sensing the signal with a sensor to produce a received signal; (c) identifying a critical point

¹ Herzl, column 4, lines 31-41.

(where the critical point is defined as the estimated beginning of the received signal), and (d) using the critical point for determining the time-of-flight of the signal.³

Herzl switches between (-) to (+) using the CS signal applied to trigger 19, but fails to mention that trigger 19 is for determining whether the instantaneous flow rate of the fluid pulses or not. Accordingly, Herzl in view of Freund fails to teach, advise, or suggest "fluctuation determination means for determining whether the instantaneous flow rate of the fluid pulses or not" as recited in claim 1 (and claims 2-4, which depend from claim 1) (emphasis added).

Herzl in view of Freund also fails to teach, advise, or suggest "stable flow rate calculation means for calculating a stable flow rate of the fluid by using different flow rate calculation programs based on the instantaneous flow rate value measured by the instantaneous flow rate detection means according to a determination result of the fluctuation determination means" as recited in claim 1 (and claims 2-4, which depend from claim 1). The Examiner references column 3, line 52 to column 4, line 53 of Herzl as disclosing this claimed limitation. But the Examiner concedes that "Herzl does not explicitly disclose an instantaneous flow rate detection means". The Examiner alleges that Freund discloses an instantaneous flow rate detection means at column 5, lines 1-56. However, Freund also fails to disclose this claim limitation.

Furthermore, Herzl in view of Freund fails to teach, advise, or suggest "stable flow rate calculation means for calculating a stable flow rate of the fluid by using different flow rate calculation programs" as recited in claim 1. Herzl discloses trigger 19, "whose function is to turn a noisy composite signal into a square wave representing the fundamental frequency".⁴ The operating frequency range in Herzl is between 10 Hz and 1000 Hz.⁵ Herzl does not disclose calculating a stable flow rate of fluid; or doing this by using different flow rate calculation programs.

Herzl switches between (-) to (+) using the CS signal applied to trigger 19. But Herzl in view of Freund also fails to teach, advise, or suggest "the fluctuation determination means determines whether the instantaneous flow rate of the fluid pulses or not" as recited in claim 2 (emphasis added).

² Freund, column 1, lines 16-19.

³ Freund, claim 1.

⁴ Herzl, column 4, lines 18-21.

CONCLUSION

Thus, Herzl in view of Freund fails to teach, advise, or suggest one or more of the claimed elements, so that claims 1-4 are patentable over Herzl in view of Freund. Applicant respectfully requests withdrawal of these rejections.

Applicant respectfully submits that the present application is in condition for allowance. Reconsideration of the application is thus requested. Applicant invites the Office to telephone the undersigned if he or she has any questions whatsoever regarding this Response or the present application in general.

Respectfully submitted,

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⁵ Herzl, column 3, lines 53-56.